



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

FEB - 4 1998

Ref: 8P2-W-GW

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Ms. Kathy Turner  
Petroleum Engineering Technician  
Petroglyph Operating Company, Inc.  
P. O. Box 1839  
Hutchinson, Kansas 67504-1839

RE: UIC MINOR PERMIT MODIFICATION  
Conversion of Additional Well to  
Antelope Creek Waterflood  
EPA Area Permit UT2736-00000  
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 30, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #04-08	SE/NE Section 4 T 5 S - R 3 W Duchesne County, UT	#UT2736-04425

This additional well is within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in this Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.



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RE: UIC MINO  
Conversi  
Antelope  
EPA Are  
Duchesne

*Scan under*  
UT 20736-00000  
*66* Modification -  
minor mod approved  
2/4/1998  
will be linked to  
UT 20736 - 04425  
under 81 Add  
Well to Area Permit

Dear Ms. Turner:

Your letter of December 30, 1997, requesting following production well be converted to a Class II enhanced recovery well and added to the Antelope Creek Waterflood is hereby authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
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- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 1919 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.

The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP) observed during fracturing treatments performed on three (3) individually fraced zones within the Ute Tribal #04-08 well. The lessor of the three ISIP's was used to calculate the theoretical maximum allowable surface injection pressure as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where:  $P_{max}$  = Maximum surface injection pressure at wellhead

$d$  = 4602' shallowest perforations after conversion

$S_g$  = Specific gravity of injected water

$$P_{max} = [0.85 - .433 (1.00)] 4602$$

$$P_{max} = 1919 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.85 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure ( $P_{max}$ ) for this well will be 1919 psig.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

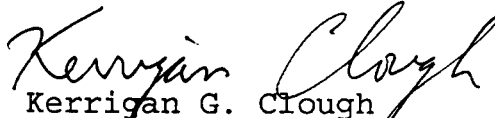
**Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received separate written authorization to inject by the Environmental Protection Agency.** In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined.**
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing MAIL CODE 8P2-W-GW. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Pollution Prevention,  
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman  
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director  
Ute Indian Tribe

Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka  
BLM - Vernal District Office

Mr. Gilbert Hunt  
State of Utah Natural Resources  
Division of Oil, Gas & Mining

# Mechanical Integrity Test

## Casing or Annulus Pressure Test for Well UT2736-04425

U.S. Environmental Protection Agency  
Underground Injection Control Program, UIC Implementation Section, 8WM-DW  
999 18th Street, Suite 500, Denver, CO 80202-2466  
This form was printed on 01/20/1998.

EPA Witness: \_\_\_\_\_ Date     /     /    

Test conducted by: \_\_\_\_\_

Others present: \_\_\_\_\_

UTE TRIBAL #04-08 ANTELOPE CREEK Petroglyph Operating Company, Inc.,  Last MIT: No record    /    / Max Allowed Press    psig	2R UC as of    /    / SENE 04 05S 03W Hutchinson, KS    Op ID PTG01  1997 Max Reported Press 0 psig
--	---

Is this a regularly scheduled test?    ☐ Yes    ☐ No  
 Initial test for permit?    ☐ Yes    ☐ No  
 Test after well rework?    ☐ Yes    ☐ No

Well injecting during test?    ☐ NO    ☐ YES    \_\_\_\_\_ BPD

Initial casing/tubing annulus pressure \_\_\_\_\_ psig

Does the annulus pressure build back up?    ☐ Yes    ☐ No

TUBING PRESSURE			
Initial	psig	psig	psig
End of Test	psig	psig	psig
CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test #2	Test #3
0 min	psig	psig	psig
5			
10			
15 min			
20			
25			
30 min			
<b>Result (circle)</b>	Pass      Fail	Pass      Fail	Pass      Fail

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 Hutchinson, Kansas 67504-1839

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 EPA Area Permit UT2736-00000  
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CEW  
 8P2-W-GW  
 1/21/98

8P2-W-GW  
 W. Montecarlo  
 1/22/98  
 mailed 2/4/98  
 1/29/98

P. M. H.  
 2/2/98

Hock  
 8P2W-GW  
 2/3/98

W. Stone  
 8P2-W-GW  
 2/4/98



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Sincerely,

Original signed  
Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Pollution Prevention,  
State & Tribal Assistance

Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Pollution Prevention,  
State and Tribal Assistance

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cc: Mr. Ronald Wopsock, Chairman  
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Ms. Elaine Willie, Environmental Director  
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Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka  
BLM - Vernal District Office

Mr. Gilbert Hunt  
State of Utah Natural Resources  
Division of Oil, Gas & Mining

FCD: January 21, 1998. Chuck W., F:\DATA\WP\PETROGLF\MNRMD-04.14



2/9/98 CW 3220C

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

FEB 9 1998

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

**Ms. Kathy Turner**  
**Geology/Petroleum Engineering Technician**  
**Petroglyph Operating Company, Inc.**  
**P.O. Box 1839**  
**Hutchinson, KS 67504-1839**

4a. Article Number

**P 164 014 448**

4b. Service Type

- |   |   |
|---|---|
| <input type="checkbox"/> Registered                     | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail                   | <input type="checkbox"/> Insured              |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD                  |

7. Date of Delivery

FEB 11 1998

5. Received By: (Print Name)

*Kristine Brown*

6. Signature: (Addressee or Agent)

*X Kristine Brown*

8. Addressee's Address (Only if requested and fee is paid)

*reid-kg*  
 FEB 13 1998

PS Form 3811, December 1994

F

Domestic Return Receipt

Thank you for using Return Receipt Service.

2/9/98 CW 3220C  
 P 164 014 448

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
<b>Ms. Kathy Turner</b>	
<b>Geology/Petroleum Engineering Technician</b>	
Post Office, State, & ZIP Code	
<b>Petroglyph Operating Company, P.O. Box 1839</b>	
<b>Hutchinson, KS 67504-1839</b>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995